
Isolating and correcting faults

Introduction

This chapter explains how to identify and clear Meridian 1 ISDN BRI faults. It is assumed that readers of this publication possess a basic knowledge of Meridian 1 fault clearing methods described in the Northern Telecom publication *Meridian 1 fault clearing* (553-3001-510).

Fault detection and correction

Based on whether ISDN BRI is newly installed and not yet operational, or if it was operating correctly and is now faulty, try to determine the probable cause of system or card failure.

Problems can occur in the following three areas.

- hardware
- configuration
- software

The types of faults requiring isolation and correction depend on whether faults occur during installation or are due to component failure in a previously operating system. For example, in a newly installed system the fault may lie in any or all of the three areas; however, in a previously operating system the fault probably lies in the hardware.

Newly installed ISDN BRI equipment

Problems occurring while installing ISDN BRI equipment are usually caused by the following.

- improperly installed cards
- loose or improperly connected cables or improperly wired cross-connect in the DSL
- incorrect software
- incorrect ISDN BRI configuration

Previously operating ISDN BRI equipment

Problems occurring during the normal operation of ISDN BRI equipment are usually caused by the following.

- faulty cards
- accidental cable disconnection
- faulty power supply
- improper environmental conditions

Isolating faults

[Figure 1](#) presents a flowchart that deals specifically with ISDN BRI service problems. Based on the symptoms that these problems exhibit, the flowchart refers to the test procedures in this document that can resolve these problems.

If the problem cannot be resolved after exhausting all available diagnostic tools and test procedures, list all the observed symptoms and contact your technical service representative.

Figure 1
ISDN BRI fault isolation flowchart

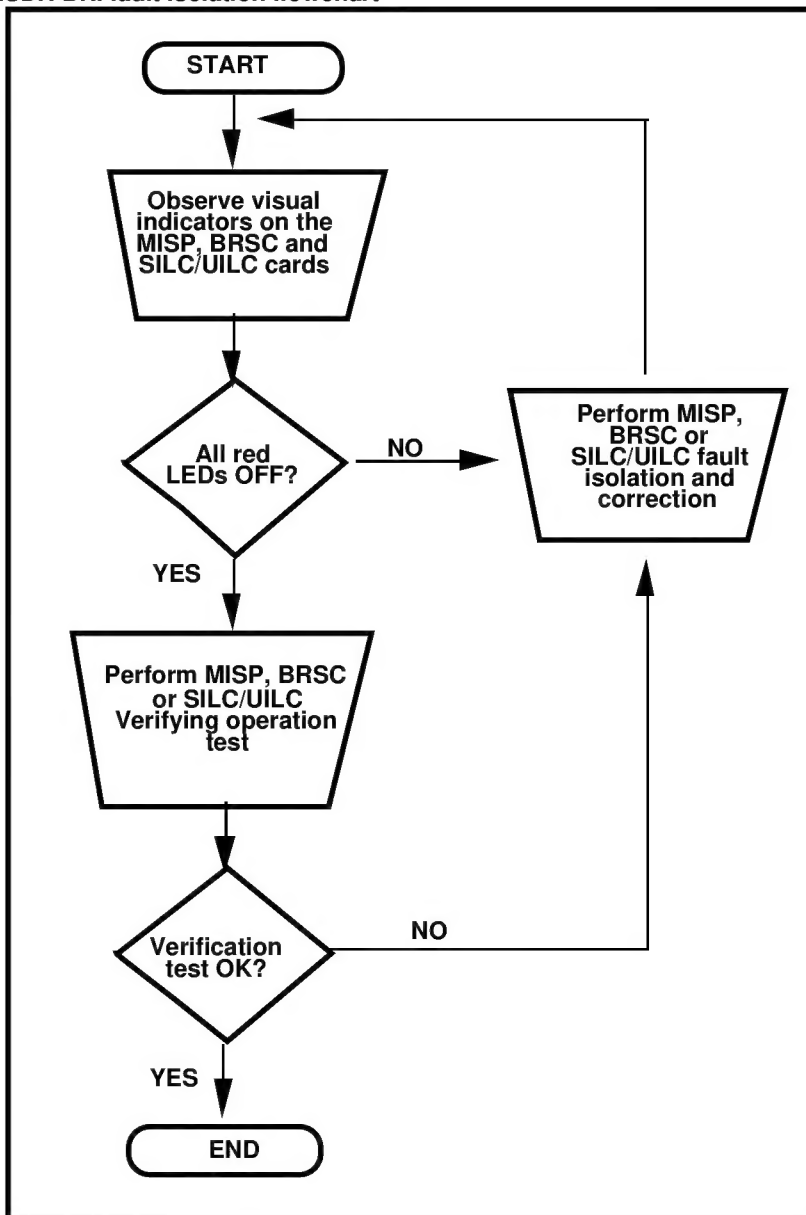


Table 1
ISDN BRI equipment problems (Part 1 of 2)

Symptoms	Diagnosis	Solution
Red LED on the MISP is permanently on.	The MISP is faulty, has not been configured, or is disabled. Program software download (PSDL) has failed due to MISP or disk failure.	Check the MISP status - go to "MISP fault isolation and correction" procedure in this chapter. If all the MISPs in the system show red LED on, check the program software download; otherwise, replace the defective MISP.
Automatic recovery routine activates every 30 seconds to enable or disable the MISP as indicated by the MISP LED flashing every 30 seconds.	Incompatibility between the software configuration and the application indicating a missing or incorrectly configured MISP. The MISP is faulty.	Check that the MISP is installed in the correct card slot. To verify the MISP configuration parameters, refer to the 553-3901-300. Go to "Performing the MISP self-test."
Red LEDs on one or more SILCs, UILCs or BRSCs are permanently on.	The SILCs and/or UILCs and/or BRSCs are faulty, disabled, or not configured.	Check the card status - go to "SILC or UILC fault isolation and correction" or the "Performing the BRSC self-test" in this chapter.
Calls cannot be placed or received on all SILCs and/or UILCs or BRSCs associated with a specific MISP.	The MISP, BRSC(s) or line cards are faulty, have not been configured, or are disabled.	Check the MISP status - go to "MISP fault isolation and correction" procedure in this chapter. Check the card status - go to "SILC or UILC fault isolation and correction" or the "Performing the BRSC self-test" in this chapter.
Calls cannot be placed or received on some SILCs and/or UILCs or BRSCs associated with a specific MISP.	The SILCs and/or UILCs or BRSCs are faulty or disabled. The loop or the module is disabled. The signaling link between the MISP and the BRSC, SILCs or UILCs is faulty.	Check the card status - go to "SILC or UILC fault isolation and correction" procedure in this chapter, or the "Performing the BRSC self-test" in this chapter. Check the continuity of the signaling channel - go to "Performing the MISP loopback tests" in this chapter.

Table 1
ISDN BRI equipment problems (Part 2 of 2)

Symptoms	Diagnosis	Solution
Calls cannot be placed or received on some DSLs on a particular line card.	The DSLs are incorrectly configured, not configured, or disabled.	Check the status of each DSL - go to "SILC or UILC fault isolation and correction" in this chapter; go to "Performing the BRSC self-test" in this chapter.
	Signaling link between the MISP, the BRSC or the SILCs or UILCs is faulty.	Check the signaling link between the MISP and the BRSC, and the SILC and/or SILCs - go to "Performing the MISP loopback tests".
	ISDN BRI terminal is faulty or incorrectly configured.	Check the ISDN BRI terminal user guide to ensure the terminal is operating correctly.
	Duplicate TEIs may exist on the DSL	Perform TEI check on the DSL.
Problems with features on ISDN BRI terminals.	DSL wiring is faulty.	Check the DSL wiring.
	Incorrect DSL and/or TSP configuration for the connected ISDN BRI terminals.	Verify the DSL and the TSP parameters, with the configuration procedures found in the 553-3901-300.
User reports problems with calls on specific type terminals.	Mismatch between the DSL configuration and the terminal type connected to the DSL, a faulty terminal, or a faulty connection to the DSL.	Go to "SILC or UILC fault isolation and correction" or "Performing the BRSC self-test" in this chapter to check the status of each DSL.
		Check the DSL wiring. Check the ISDN BRI terminal user manual to determine if the terminal is operating correctly and is configured correctly.

MISP fault isolation and correction

The MISP provides a communication interface between the CPU and the peripheral devices. It communicates with the CPU over the CPU bus. It communicates with the BRSCs, the SILCs, and the UILCs over the Network bus. Both buses are located on the Network module backplane. It uses one network loop to interface with the BRSCs, the SILCs and the UILCs.

The MISP processes the signaling information received on the D-channels from the DSLs. If a BRSC is not used, the MISP also separates packet data from signaling information and forwards it to the packet handler on the Dchannels.

Problems with the MISP may be caused by hardware faults, incorrect configuration, disabled MISP, or continuity problems between the MISP and other network cards connected to the network bus. To isolate and correct the MISP-related problems, use the following procedures.

Checking the MISP status

To isolate and correct the MISP-related problems, follow the procedures below.

Checking the MISP status:

- 1 Log-in on the maintenance terminal and load overlay program 32 (type in **LD 32**).
- 2 Enter **STAT III**, where **III** is the MISP loop number.

If the response is

```
III : MISP LOOP
mm DSBL   nn BUSY
MISP III: ENBL ACTIVATED xx/xx/xx xx:x
BRIL/BRIT : ENBL
```

then

The MISP loop is enabled,

where

BRIL or **BRIT** is the ISDN line or trunk application on the MISP (whichever is configured).

mm = the number of disabled network timeslots on the MISP network loop. If **mm**>0, disabled timeslots are indicated. Go to “Checking the SILC or UILC status”. If a BRSC is configured, go to “Checking the BRSC status”.

nn = the number of busy network timeslots on the MISP network loop. If a BRSC is not used, this number equals 2 x (number of line cards + 1), where 1 indicates that packet data transmission is configured; that is, there are 2 timeslots for each SILC or UILC and an additional timeslot for packet handling. If a BRSC is used, **nn** equals 2 x (number of line cards) + number of BRSCs + 1.

xx/xx/xx xx:x = date and time the MISP base code was activated.

If the response is

**III=MISP LOOP
DISABLED RESPONDING
MISP III MAN DSBL**

then

The MISP loop:

- has been manually disabled by **DISL III**, or
- has an overload condition, or
- has failed the self-test when enabling this loop

Enable the MISP loop by typing **ENLL III**, where **III** is the MISP loop number. A message indicating that the MISP is enabled and working is displayed on the console. Observe the red LED on the MISP. If it extinguishes, the MISP is functioning correctly. If the LED stays lit, the MISP probably failed the self-test and a message should be displayed on the maintenance terminal. If the message indicates that the MISP is faulty, replace it; or

If an overload condition exists, the card is faulty. Replace the card following the procedures outlined in “Removing and replacing the MISP” section in this document; or

If the self-test failed, refer to the “Performing the MISP self-test” section in this document for corrective action.

If the response is

BRIL/BRIT: MAN DSBL

then

The BRIL/BRIT application is manually disabled.

Enable the MISP loop by typing **ENLL III**, where **III** is the MISP loop number. A message indicating that the MISP is enabled and working is displayed on the console. Observe the red LED on the MISP. If it extinguishes, the MISP is functioning correctly. If the LED stays lit, the MISP probably failed the self-test and a message should be displayed on the maintenance terminal. If the message indicates that the MISP is faulty, replace it.

If the response is

BRIL/BRIT:SYS DSBL

then

The BRIL/BRIT application is system disabled.

Enable the MISP loop by typing **ENLL III**, where **III** is the MISP loop number. A message indicating that the MISP is enabled and working is displayed on the console. Observe the red LED on the MISP. If it extinguishes, the MISP is functioning correctly. If the LED stays lit, the MISP probably failed the self-test and a message should be displayed on the maintenance terminal. If the message indicates that the MISP is faulty, replace it.

If the response is

NO APPLICATION CONFIGURED

then

The BRIL/BRIT application is not configured on the MISP. Configure the BRIL/BRIT application. Refer to *ISDN Basic Rate Interface Administration*.

If the response is

**III=MISP LOOP
DISABLED RESPONDING
MISP III SYS DSBL - xxxxxxxx**

then

The MISP is responding, but the MISP loop:

- has been system disabled;
- an overload condition exists on the loop;
- the self-test failed when enabling the MISP loop.

where

xxxxxxx may indicate one of the following:

SELF TESTING - the card is performing self-test.

SELFTEST PASSED - the card successfully completed self-test.

BOOTLOADING - the base code is downloading to the MISP.

SELFTEST FAILED - the self-test failed. Refer to the “Performing the MISP self-test” section in this document.

FATAL ERROR - the MISP has a serious problem. Perform a MISP self-test or loopback test as detailed in “Performing the MISP self-test” and “Performing the MISP self-tests” sections in this document.

SHARED RAM TEST FAILED - the card has a memory problem. Check the memory allocation on the MISP card.

OVERLOAD - the card is faulty and experienced an overload. Replace the card following the procedures outlined in “Removing and replacing the MISP” section in this document.

RESET THRESHOLD - the card reached the specified threshold, which has to be reset.

STUCK INTERRUPT - hardware failure, interrupt is permanently ON.

If the response is

**III=MISP LOOP
DISABLED NOT RESPONDING
MISP III MAN DSBL**

then

The MISP loop is manually disabled, and the MISP is:

- not responding;
- missing;
- installed in an incorrect slot; or
- faulty.

Check for these conditions and refer to the appropriate test procedure.

When the NOT RESPONDING condition is cleared, enable the MISP loop by typing **ENLL III**, where **III** is the MISP loop number. A message indicating that the MISP is enabled and working is displayed on the console. Observe the red LED on the MISP. If it extinguishes, the MISP is functioning correctly. If the LED stays lit, the MISP probably failed the self-test and a message should be displayed on the maintenance terminal. If the message indicates that the MISP is faulty, replace it.

If the response is

**III=MISP LOOP
DISABLED NOT RESPONDING
MISP III SYS DSBL - NOT RESPONDING**

The MISP is system disabled and:

- not responding;
- missing;
- installed in an incorrect slot; or
- faulty.

The MISP loop is system disabled.

Check for these conditions and refer to the appropriate test procedure.

A background routine tries to enable the MISP as soon as the NOT RESPONDING condition is cleared.

- 3** To obtain the ISDN BRI application status, enter **STAT BRIL/MPH III** (for a line) or **STAT BRIT III** (for a trunk) and observe the response.

If the response is

**III:MISP LOOP
APPLICATION ENBL ACTIVATED - xx/xx/xx xx:xx**

the application has been activated at the date and time specified by xx/xx/xx xx:xx.

If the response is

**III:MISP LOOP
APPLICATION NOT CONFIGURED**

the application is not configured for the specified MISP. Configure the BRIL/BRIT application. Refer to *ISDN Basic Rate Interface Administration*.

If the response is

**III:MISP LOOP
DISABLED NOT RESPONDING**

the application status is not displayed because the MISP running the application is disabled or faulty and is not responding. Check for these conditions and refer to the appropriate test procedure.

Enable the MISP as soon as the cause of NOT RESPONDING is cleared, by typing **ENLL III**, where **III** is the MISP loop number. A message indicating that the MISP is enabled and working is displayed on the console. Observe the red LED on the MISP. If it extinguishes, the MISP is functioning correctly. If the LED stays lit, the MISP probably failed the self-test and a message should be displayed on the maintenance terminal. If the message indicates that the MISP is faulty, replace it.

If the response is

**III:MISP LOOP
DISABLED RESPONDING**

the application status is not displayed because the MISP running the application is responding but is disabled. Check for these conditions and refer to the appropriate test procedure.

If the response is

**III:MISP LOOP
APPLICATION MAN DISABLED**

the application is manually disabled using LD 32. Enable the MISP loop by typing **ENLL III**, where **III** is the MISP loop number. A message indicating that the MISP is enabled and working is displayed on the console. Observe the red LED on the MISP. If it extinguishes, the MISP is functioning correctly. If the LED stays lit, the MISP probably failed the self-test and a message should be displayed on the maintenance terminal. If the message indicates that the MISP is faulty, replace it.

If the response is

**III:MISP LOOP
APPLICATION SYS DISABLED**

the application is system disabled; the background routine will attempt to enable it again.

Performing the MISP self-test

If the MISP status indicates that the MISP is faulty, conduct the self-test to verify that this MISP is faulty before replacing it. This test verifies the basic MISP functions and outputs a fail or pass message after the test is completed. To run the self-test, perform the following steps:

Performing the MISP self-test

- 1 Log in on the maintenance terminal and load overlay program 32 (type in **LD 32**).
- 2 Type **DISL III** and press the ENTER key to disable the MISP loop, where **III** is the MISP loop number. If the MISP is already disabled, go to step 4.
- 3 Exit LD 32 by typing ******** at the prompt.
- 4 Type **LD 30** and press the ENTER key to access the Network and Signaling Diagnostic Program to perform the self-test.
- 5 Type **SLFT III type** and press the ENTER key to start the self-test, where **III** is the MISP network loop number and **type** is **1** for a detailed self-test and **2** for a minimal test.

If the response is

NWS637

the MISP card passed the self-test and is functional but must be enabled to turn off the red LED and to start processing calls. It may take up to 20 seconds to display this response.

If the MISP passed the self-test but the problem persists, the loop or other cards interfacing with the MISP may be faulty. To verify the integrity of the network buses and the links between the MISP and other network and peripheral equipment cards interfacing with the MISP, go to “Performing the MISP loopback tests.”

If the response is

NWS632

the MISP card failed the self-test and is faulty. Replace the MISP as described in the next chapter, “Replacing ISDN BRI cards.” Other **NWSxxx** messages may display as a result of a command-activated self-test if the MISP is missing, not configured, etc.

Performing the MISP loopback tests

If the MISP self-test indicates that the MISP is not faulty, conduct loopback tests to isolate the problems that may exist on the network cards, network buses, or connections between the MISP and the SILCs and/or UILCs.

Two types of MISP loopback tests can be performed. These are:

- MISP loopback at a DSL interface
- MISP loopback at the SILC or UILC DS30X peripheral bus interface

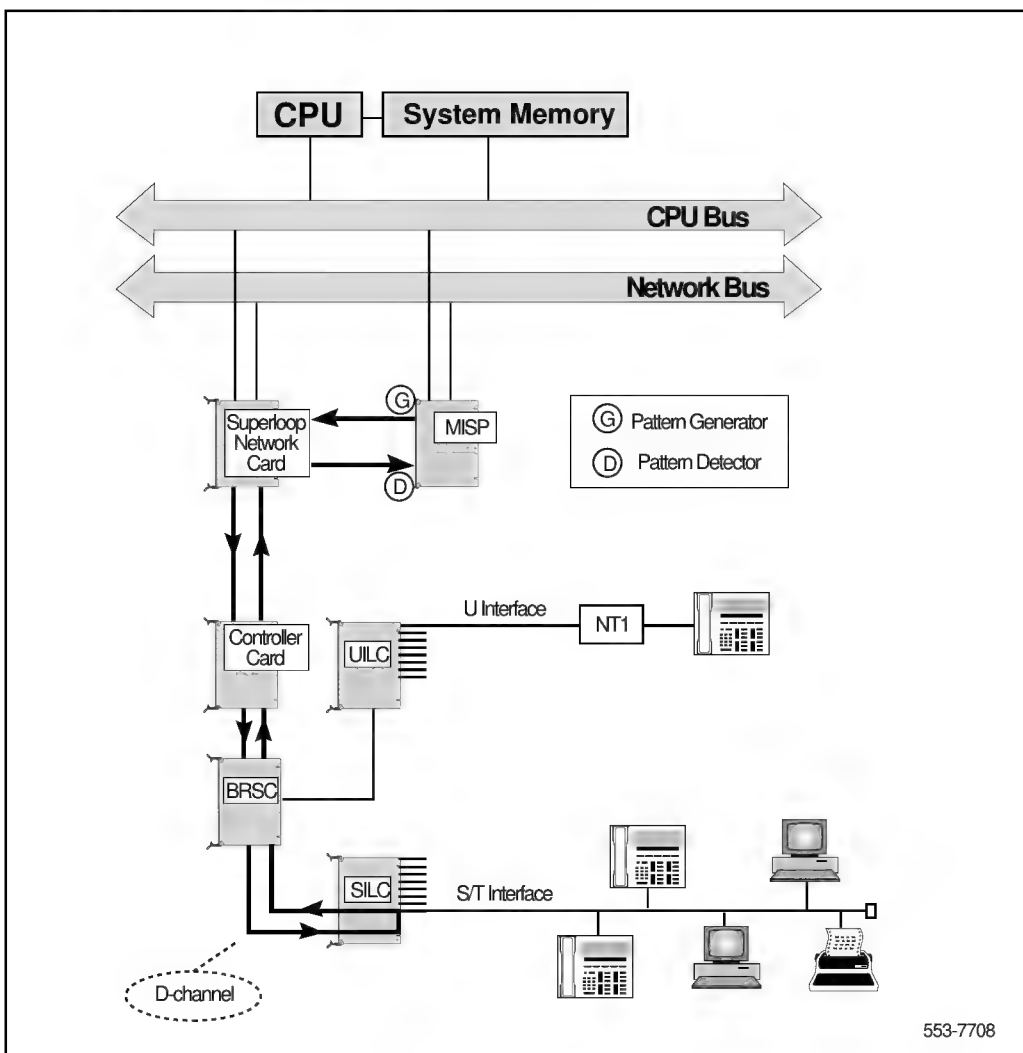
Note: If a BRSC is configured, the MISP to line card DSL loopback through the BRSC tests the entire D-channel signaling path. The MISP BRI line application generates and verifies the data through the path. The ISDN BRI application on the BRSC passes the data transparently. The MISP to line card loopback through the BRSC tests the path from the MISP application through the BRSC to the line card. The ISDN BRI application on the BRSC passes the data transparently.

MISP loopback at a DSL interface

The loopback at a DSL interface checks the continuity of the D-channel signaling path between the MISP and an individual SILC or UILC port. This procedure also tests the connections between the MISP and the DSL through the Network Superloop Card and the Peripheral Controller Card.

[Figure 2](#) illustrates a DSL loopback path and the MISP as a test pattern generator and detector.

Figure 2
MISP loopback at a DSL interface



To start the loopback test, perform the following steps:

Testing the MISP loopback at a DSL interface

- 1 Log in on the maintenance terminal, and load overlay program 45 (type in **LD 45**).
- 2 Select test condition:

Enter **XCON 0** and press the ENTER key to perform only one loopback test.

Enter one test period shown in **XCON H 0-182, M 0-59, S 0-60** and press the ENTER key to select continuous loopback testing for a selected time span, where **H 0-182** is 0 to 182 hours, **M 0-59** is 0 to 59 minutes, and **S 0-60** is 0 to 60 seconds.

Example: **XCON M5** specifies the duration of the test to be five minutes.
- 3 At the TEST prompt, type **9** and press the ENTER key. Continue responding to the prompts to configure the loopback test as follows:

Prompt	Response	Comment
TEST	9	Selects loopback at the DSL.
PATT	x	x is the selected pattern, where x is 0-7. Refer to Table 2
TYPG	5	MISP is generating and transmitting the pattern.
LOOP	III	MISP network loop number, where III is 0-158 and must be an even number.
LBTY	3	DSL is requested to loopback.
LBTN	l s c dsl#	The address of the looped back DSL, where l is network loop, s is shelf (module), c is an SILC or UILC card, and dsl# is DSL.
TAG	xx	TAG is automatically assigned by the system. If the loopback test is continuous, the system tags the test with a number from 0 to 15 to keep track of the tests.

- 4 Check the loopback test results. The result automatically displays if XCON 0 test conditions are specified; otherwise, specify XSTA or XSTP with the test TAG number to check the status. XSTA gets the status of the manual continuity test and XSTP stops the manual continuity test. If the results show BSDxxx messages, refer to the list and description of these messages in the “Background signaling diagnostic messages (BSDxxx)” section found later in this document. The BSDxxx messages indicate the possible problem causes, which must be checked to isolate the problem.

If the loopback test passes, the problem may be somewhere in the DSL or the ISDN BRI terminal.

If the loopback test fails, go to the “Testing the MISP loopback at the SILC or UILC bus interface” procedure.

Table 2
Patterns for loopback test configuration

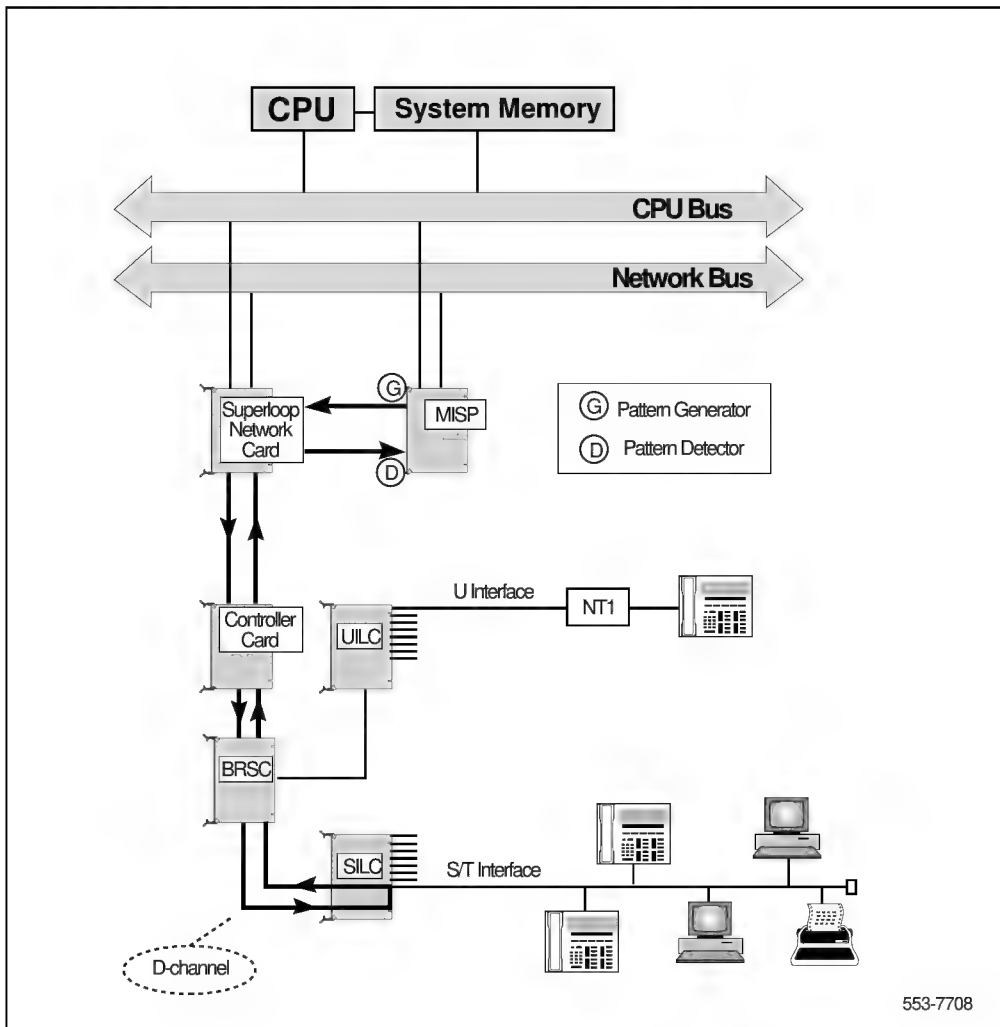
PATT	Pattern
0	11001100
1	10101010
2	01110111
3	01010101
4	10100101
5	01011010
6	11111111
7	00000000

MISP loopback at the SILC or UILC bus interface

The loopback at the SILC or UILC peripheral bus interface checks the continuity between the MISP and the SILC or UILC and its ability to communicate with the MISP over the multiplexed D-channels.

[Figure 3](#) illustrates the SILC or UILC loopback path and the MISP as a test pattern generator and detector.

Figure 3
MISP loopback at the SILC or UILC peripheral bus interface



Before starting loopback testing at the SILC or UILC, disable the card to be tested; when the card is disabled, the system disconnects all the calls handled at the time by that card. Perform the following steps:

Testing the MISP loopback at the SILC or UILC bus interface

- 1** Log in on the maintenance terminal, if you are not already logged on, and load overlay program 32 (type in **LD 32**).as described in “Using the diagnostic programs” in the previous chapter if not already logged in.
- 2** Type **DISC l s c** and press the ENTER key to disable the SILC or UILC, where **l** is the superloop number, **s** is the shelf (module) number, and **c** is the card slot number in the module.
- 3** Exit LD 32 by typing ******** at the prompt, and load overlay program 45 (type in **LD 45**).
- 4** Select test conditions:

Enter **XCON 0** and press the ENTER key to perform only one loopback test.

Enter one test period shown in **XCON H 0-182, M 0-59, S 0-60** and press the ENTER key to select continuous loopback testing for a selected time span where **H 0-182** is 0 to 182 hours, **M 0-59** is 0 to 59 minutes, and **S 0-60** is 0 to 60 seconds.

For example: **XCON H 1** conducts the test for one hour.

- 5** At the TEST prompt, enter **9** and press the ENTER key. Respond to the prompts to configure the loopback test as follows:

Prompt	Response	Comment
TEST	9	Selects loopback at the SILC/UILC.
PATT	x	x is the selected pattern, where x =0-7. Refer to Table 2 .
TYPG	5	MISP is generating and transmitting the pattern.
LOOP	III	MISP network loop number, where III =0-158 and must be an even number.
LBTY	4	Card is requested to loopback.
LBTN	I s c dsl#	The address of the looped back card, where I =network loop, s =shelf (module), c =SILC/UILC card, and dsl# is the port.
TAG	xx	If the loopback test is continuous, the system tags the test with a number from 0 to 15.

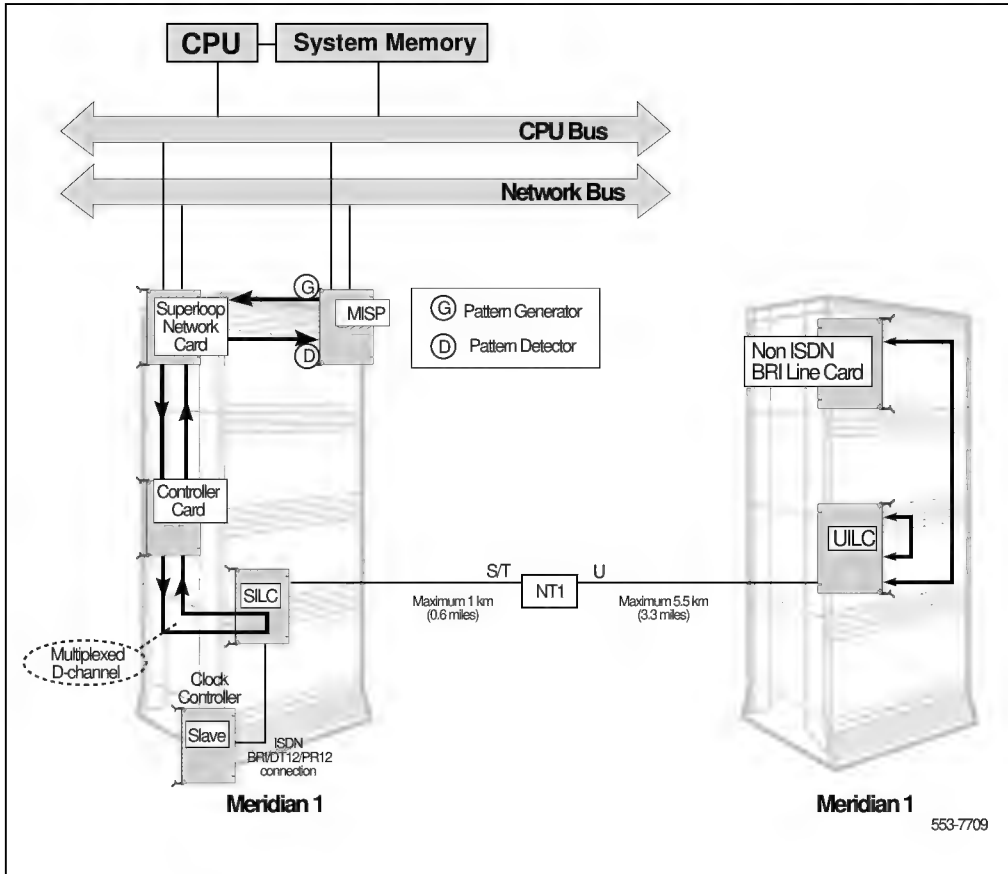
- 6** Check the loopback test results. The result automatically displays if XCON 0 test conditions are specified; otherwise, specify XSTA or XSTP with the test TAG number to check the status. If the results show BSDxxx messages, refer to the list and description of these messages in the “Background signaling diagnostic messages (BSDxxx)” section found later in this document. The BSDxxx messages indicate the possible causes to check to isolate the problem.

If the line card loopback test fails, the problem may be between the MISP and the line cards in the Superloop Network Card or Peripheral Controller Card.

Performing the ISDN BRI trunk remote loopback test

Figure 4 illustrates a remote loopback test for an ISDN BRI trunk DSL provisioned as a MCDN Tie configuration; the Tie trunk connection is achieved by connecting two Meridian 1s through an NT1 device.

Figure 4
ISDN BRI trunk DSL remote loopback



The following steps are used to perform the remote loopback test for a ISDN BRI trunk DSL provisioned as a MCDN Tie configuration.

Performing the ISDN BRI trunk remote loopback test

- 1** Log in on the maintenance terminal and load overlay 32 (type in **LD 32**).
- 2** Put the far-end and near-end of the ISDN BRI trunk in the test mode by entering the **ENTS L S C D** command, and pressing the ENTER key.

Note: the ISDN BRI trunk DSL must be configured for the ISDN BRI trunk application, and must be either in the release or enabled state.

If the reference clock source is configured on the DSL, you will be prompted with “**CLOCK SOURCE ON DSL # OF SILC L S C, PROCEED?**” to ensure that you have taken necessary precautions for uninterrupted clock reference for the system.

- 3** Put the far-end ISDN BRI trunk DSL in the remote loopback mode by entering the **ENRB L S C D** command, and pressing the ENTER key.
- 4** Run the remote loopback test by entering the **RLBT L S C D** command, and pressing the ENTER key.

The result of the test will be displayed as follows:

DSL: L S C / C RLB TEST TIME: xx:xx

TEST: PASS

TEST: FAIL - NO DATA RCV FAR END

TEST: FAIL - CORPT DATA RCV FAR END

TEST: FAIL - REASON UNKNOWN

If the test failed due to no data or corrupt data being received from the far end, verify that proper test data is being used; if the test failed for unknown reasons, make ensure that the ISDN BRI trunk DSL has been properly configured for the ISDN BRI trunk application, and perform the test again.

- 5** Take the far-end ISDN BRI trunk DSL out of remote loopback mode by entering the **DSRB L S C D** command, and pressing the ENTER key. The the far-end and near-end ISDN BRI trunk DSLs are placed in the test mode.
- 6** Take the far-end and near-end ISDN BRI trunk DSLs out of test mode by entering the **DSTS L S C D** command, and pressing the ENTER key. The ISDN BRI trunk DSLs are reset in their release or established state.
- 7** Enable the ISDN BRI trunk DSL by entering the **ENLU** command.

BRSC fault isolation and correction

The BRSC processes the signaling information received on the D-channels from the DSLs. It sends the resulting Network messages to an MISP by means of a single channel. The BRSC also filters out D-channel Packet Switched Data (DPSD) from the line cards and it routes this information to an internal or external packet handler.

Problems with the BRSC may be caused by hardware faults, incorrect configuration, disabled BRSC or MISP, or continuity problems between the MISP and other network cards connected to the network bus.

Checking the BRSC status

The first step in identifying any problem is to verify the status of the BRSC. To obtain the status of a BRSC and the ISDN BRI application, execute this command in the Network and IPE Diagnostic, LD 32:

STAT III s cc

A possible response is:

APPLICATION	MAIN STATE	SUB STATE/ACTIVATION TIME
BASECODE	ENABLED	xx/xx/xx x:xx
BRI	ENABLED	xx/xx/xx x:xx
IDLE 0	BUSY 0	DISABLED 8
MBSY 0		
TOTAL DSLS	CONFIGURED	8

For this example, the BRSC is servicing eight DSLs that are all disabled.

[Table 3](#) shows the main states for the BRSC.

Table 3
BRSC maintenance states

BRSC status	Description	Comments
ENABLED	BRSC and MISP enabled.	No action required.
SYSTEM DISABLED	BRSC basecode disabled and ready to be enabled.	Enable BRSC using ENLC III s cc in LD 32.
MANUALLY DISABLED	Craftsperson has disabled the card, or enabling the BRSC has failed.	Enable the BRSC using ENLC III s cc in LD 32; perform BRSC self-test.

[Table 4](#) lists the sub-states when the BRSC is either in MANUALLY or SYSTEM DISABLED state.

Table 4
BRSC maintenance sub-states

BRSC status	Description	Comments
ENABLING	BRSC is being enabled.	No action required.
DISABLING	BRSC is being disabled.	No action required.
DOWNLOADING S/W	Software download is taking place.	No action required.
WAITING FOR S/W DOWNLOAD	Background audit detected need for software download.	Quit overlay to invoke background peripheral software download.
INVALID STATE	Software error.	Manually disable and manually enable the BRSC.
RESPONDING	An attempt to enable the BRSC is taking place.	No action required.
NOT RESPONDING	The system cannot communicate with the BRSC basecode.	Verify that the BRSC is properly installed; perform the BRSC self-test.
SELFTEST IN PROGRESS	BRSC is placed in this state when: - BRSC is installed in the IPE module - self-test command invoked in LD 30 - self-test command issued at the beginning of the enabling process.	No action required.
SELFTEST FAILED	BRSC card is faulty.	Re-invoke the self-test command in LD 30; replace BRSC.
SIGNALING TEST	BRSC is undergoing signaling test, such as a loopback test in LD 45.	No action required.

Checking the status of the BRSC card identification and loadware versions

To obtain the status of a BRSC card identification base code and the ISDN BRI application version number, execute this command in the Network and IPE Diagnostic, LD 32:

IDC III s cc

If the channel between the MISP and BRSC is up, the response is:

=> xxx...x

BOOTCODE VERSION: xx:xx

BASECODE VERSION: xx...x (hw_state)

BRI APPL VERSION: xx...x (hw_state)

hw_stat is the Base Code or the state of the ISDN BRI application in the BRSC.

If the channel between the MISP and BRSC is down, the response is:

**LOADWARE VERSION NOT AVAIL-MISP CANNOT ACCESS
BRSC CARD**

Checking the status of the Terminal Endpoint Identifiers

The TEIs and their corresponding User Service Identifier (USID) on the specified DSL have established the D-channel data link layer with the MISP. To obtain the status of the TEIs and USID, execute the **STEI III s cc** command in the Network and IPE Diagnostic, LD 32.

The output format is:

MISP 111

TEI	USID
===	====
nnn	nnnn
...	

Performing the BRSC self-test

If the BRSC status indicates that the BRSC is faulty, conduct the self-test to verify that this BRSC is faulty before replacing it. This test verifies the basic BRSC functions and outputs a fail or pass message after the test is completed. To run the BRSC self-test, follow the procedure below.

- 1** Log in on the maintenance terminal.
- 2** At the > prompt, type **LD 32** and press the ENTER key to access the Network and IPE Diagnostic Program.
- 3** Type **DISL lll s cc** and press the ENTER key to disable the BRSC, where lll s cc is the BRSC card number. If the MISP is already disabled, go to step 5.
- 4** Exit LD 32 by typing ******** at the prompt.
- 5** Type **LD 30** and press the ENTER key to access the Network and Signaling Diagnostic Program to perform the self-test.
- 6** Type **SLFT lll s cc** (where lll is the superloop number, s is the shelf number, and cc is the card number). Press the ENTER key to start the self-test.

If the response is

NWS637

the BRSC passed the self-test and is functional but must be enabled to turn off the red LED and to start processing calls. It may take up to 20 seconds to display this response.

If the response is

NWS632

the BRSC failed the self-test and is faulty. Replace the BRSC as described in “Replacing ISDN BRI cards”.

Performing the BRSC loopback tests

If the BRSC self-test indicates that the BRSC is not faulty, perform the MISP to BRSC D-channel loopback tests; this tests the signaling channel between the MISP and the BRSC. See [Figure 7](#). The BRSC card must be enabled and the BRSC application disabled to invoke this test.

If a BRSC is **not** configured when performing a MISP to line card DSL loopback (as explained in the section “MISP loopback at a DSL interface”) or a MISP to line card loopback test (as explained in the section “MISP loopback at a SILC or UILC bus interface”), then also perform the following:

- an MISP to line card DSL loopback through the BRSC. See [Figure 5](#). This tests the entire D-channel signaling path. The MISP BRI line application generates and verifies the data through the path. The ISDN BRI application on the BRSC passes the data transparently.
- an MISP to line card loopback through the BRSC. See [Figure 6](#). This tests the path from the MISP application through the BRSC to the line card. The ISDN BRI application on the BRSC passes the data transparently.

Figure 5
MISP to line card DSL loopback through the BRSC

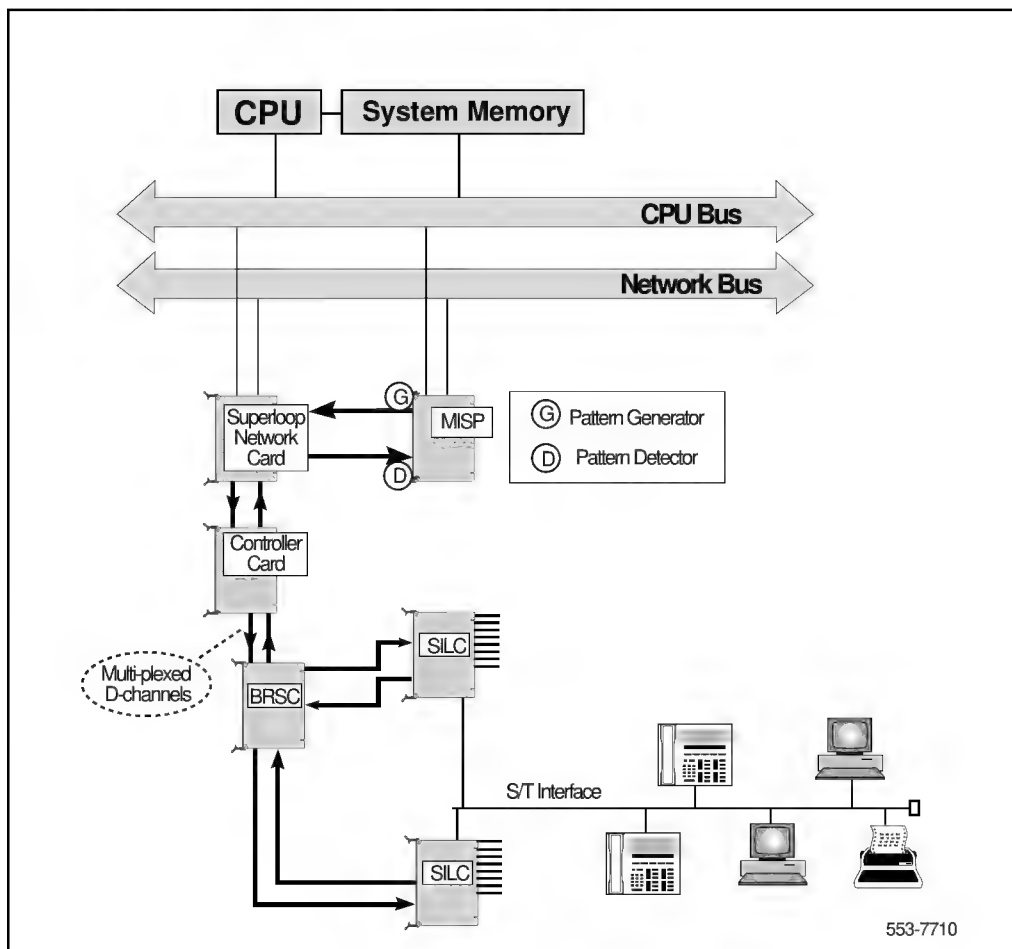


Figure 6
MISP to line card loopback through the BRSC

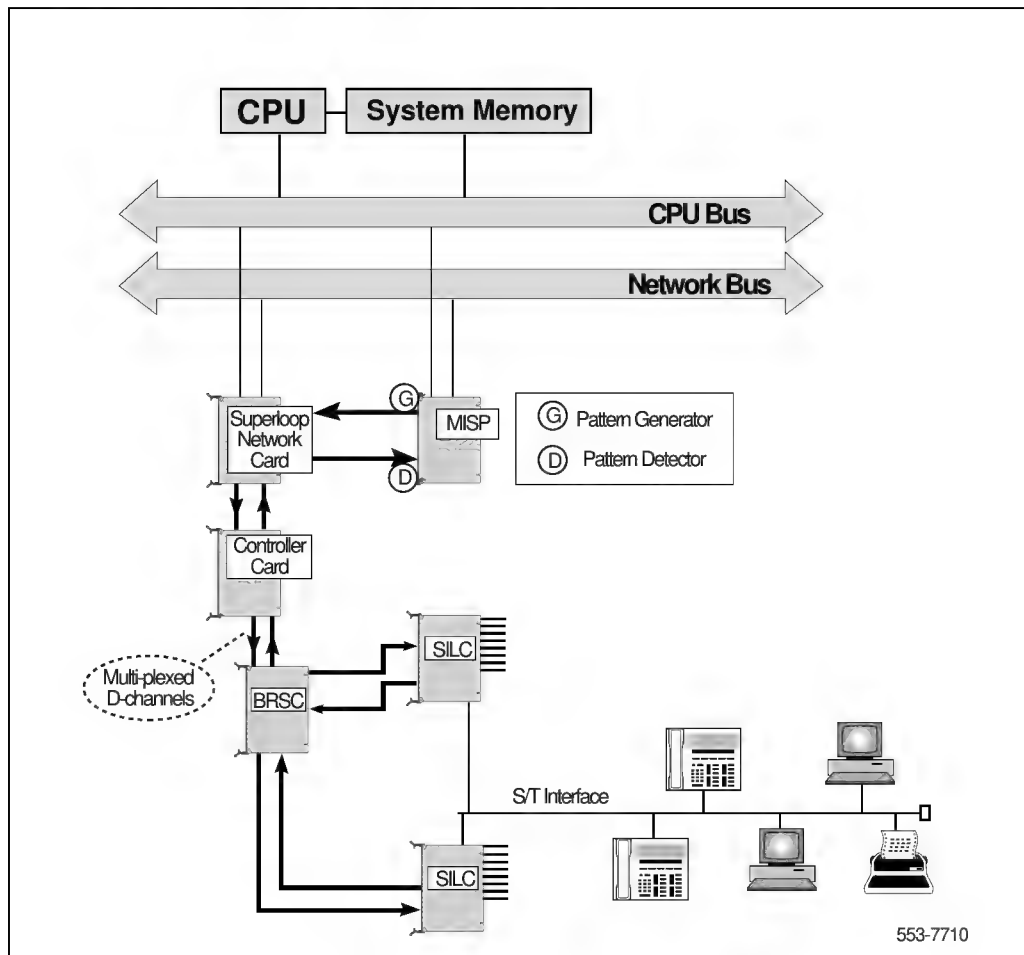
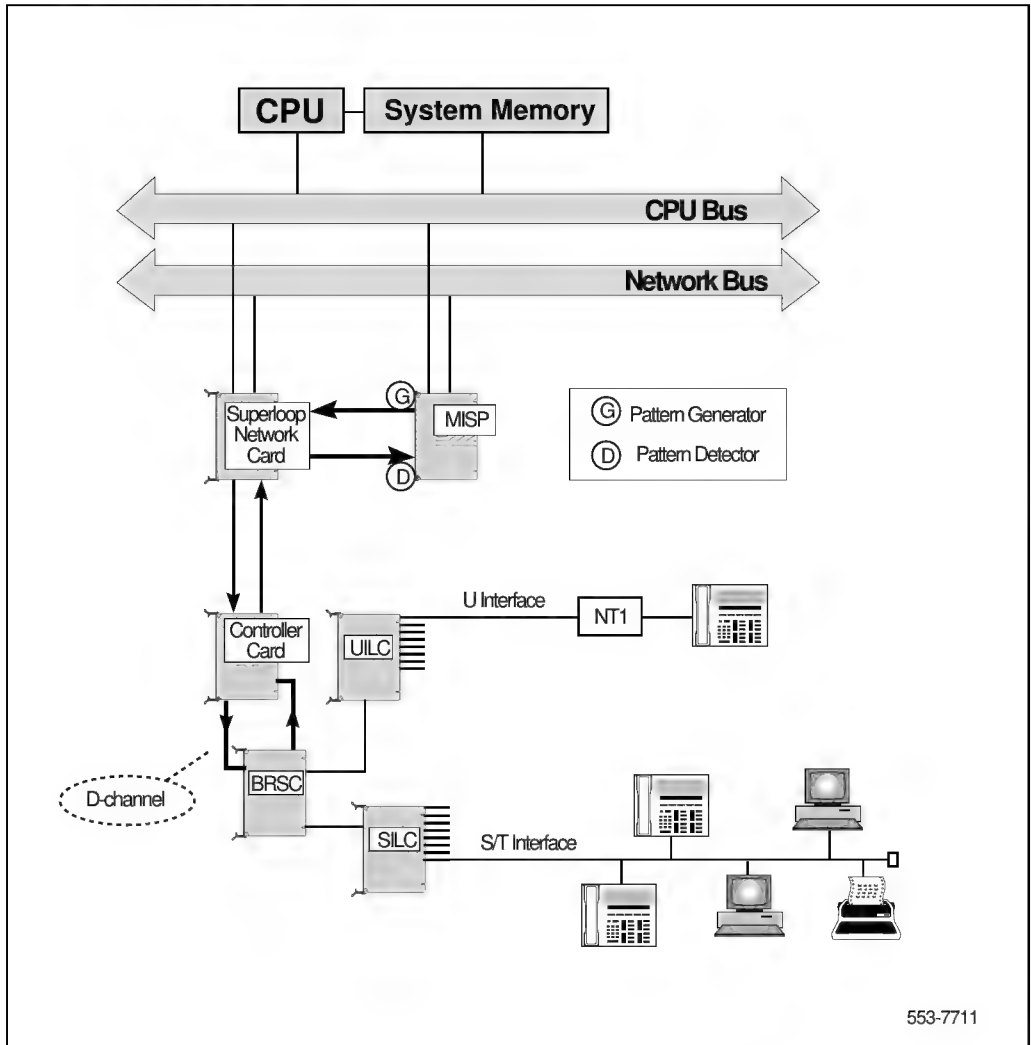


Figure 7
MISP to BRSC loopback test



SILC or UILC fault isolation and correction

The SILC and UILC Intelligent Peripheral Cards provide eight S/T interfaces and eight U interfaces respectively, which are used to connect ISDN BRI compatible terminals or trunks over DSLs to the Meridian 1 system.

Checking the SILC or UILC status

The first step in identifying the problem is to verify the status of the SILC or UILC card, by performing the following steps.

Checking the SILC or UILC status

- 1 Log in on the maintenance terminal and load overlay program 32 (type in **LD 32**).
- 2 Type **STAT l s c** and press the ENTER key, where **l** is the loop number, **s** is the shelf (module) number, and **c** is the card slot in the module.

If the response is

ll = UNEQ

the card has not been configured for the specified card slot. Make the proper configuration and proceed with the following steps.

For ISDN BRI trunks

The response is:

ll = sw_state dsl_type l2_state num_tei l1_state dch_state clock mode

where:

ll is the DSL/unit number within the line card.

sw_state is one of the following DSL software states, as perceived by the Meridian 1 (please refer to [Table 5](#)):

IDLE (no active call);
BUSY (active call in progress);
UNEQ (DSL is not equipped);
MBSY (in maintenance busy state).

dsl_type is the following type:

TRNK (ISDN BRI trunk DSL)

l2_state is one of the following DSL status, as perceived in the MISP call application (please refer to [Table 6](#)):

UNEQ (unequipped);
 IDLE (no active calls);
 BUSY (call is active);
 MSBY (in maintenance busy mode);
 DSBL (B Channel is disabled);
 ESTA (in established state);
 RLS (in release state);
 TEST (in test mode);
 RLBT (in remote loopback mode);
 APDB (application disabled);
 MPDB (MISP disabled).

num_tei is the number of established terminal end-point identifiers

Note: Not applicable to DSL trunks.

l1_state is one of the following line card states, to indicate the status of a DSL (please refer to [Table 7](#)):

UNEQ (unequipped);
 DOWN (layer 1 is down);
 UP (layer 1 is up);
 DSBL (DSL is disabled);
 LCNR (line card not responding);
 UNDN (undefined DSL state);
 XPDB (associated XPEC is disabled);
 UTSM (unable to send messages to the MISP).

dch_state is one of the following D-channel states:

ESTA (line is established);
 RLS (link is released);
 TEST-IDLE (in test mode);
 TEST-RLBT (in remote loopback test mode).

clock is one of the following clock mode configuration:

- DSBL (clock is configured but not active);
- PREF (primary reference clock is active);
- SREF (secondary reference clock is active).

mode is one of the following layer 1 mode configuration:

- NT (network);
- TE (terminal).

Example:

ll =	sw_state	dsl_type	l2_state	num_tei	l1_state	dch_state	clock	mode
00 =	IDLE	LINE	ESTA	2		UP		
01 =	UNEQ							
02 =	UNEQ							
03 =	IDLE	TRUNK	ESTA	----				TE
04 =	IDLE	TRUNK	ESTA	----				TE
05 =	UNEQ							
06 =	UNEQ							
07 =	UNEQ							

where DSL (unit) 0 is a BRI line, DSLs 3 and 4 are BRI trunks.

[Table 5](#) lists the DSL software states (**sw_state**), as perceived by the Meridian 1.

Table 5
DSL status in the Meridian 1 CPU

Software state	Description	Comments
IDLE	No active calls.	No action required.
BUSY	Call is active.	No action required.
UNEQ	DSL is unequipped.	The DSL is not configured. To configure the DSL, refer to the 553-3901-300, "DSL configuration procedures."
MBSY	DSL is in maintenance busy mode.	No action required. The DSL is being tested.
BBDB	BRSC basecode disabled.	Enable BRSC using ENLC <BASE> III s cc in LD 32.
BADB	BRSC application is disabled.	Enable BRSC using ENLC III s cc in LD 32.

[Table 6](#) lists the DSL status (**l2_state**) as perceived in the MISP call application.

Table 6
DSL status in the MISP

DSL state	Description	Comments
UNEQ	Unequipped.	MISP is not configured. To configure the MISP, refer to the 553-3901-300, "MISP configuration procedures."
IDLE	No active calls.	No action required.
BUSY	Call is active.	No action required.
MBSY	DSL is in maintenance busy mode.	No action required. The DSL is being tested.
DSBL	B Channel is disabled.	Enable using LD 32.
ESTA	DSL is in established state.	No action required.
RLS	DSL is in release state.	For Meridian 1 and 1TR6 interfaces, if Layer 2 is in RLS state, an improperly configured or faulty trunk is implied. Check the DSL configuration (refer to the (553-3901-300, "DSL configuration procedures"), or check the status of the DSL (refer to the "Checking the DSL status" section of this chapter.) For a Numeris interface, if the Layer 1 is down, the trunk is idle; no action is required.
TEST	DSL in test mode.	No action required.
RLBT	DSL in remote loopback mode.	Remote loopback test being done on DSL. Wait for test to end.
APDB	MISP line application is disabled.	Enable MISP application using LD 32.
MPDB	MISP is disabled.	Enable MISP using LD 32.

Table 7 lists line card states (**ll_state**) to indicate the status of a DSL.

Table 7
DSL status in the line card

Line card state	Description	Comments
UNEQ	Not equipped.	DSL is not configured. Refer to the 553-3901-300, "DSL configuration procedures" to configure the DSL.
DOWN	Link layer is not established.	DSL faulty. Ensure that the link layer is established.
UP	Link layer is established.	No action required.
LCNR	Line card is not responding.	Faulty line card. Go to the procedure "Checking the SILC and UILC status."
DSBL	DSL is disabled.	Enable DSL using LD 32.
UNDN	DSL is in an undefined state.	Check the DSL configuration in the 553-3901-300, "DSL configuration procedures."
UTSM	Meridian 1 CPU is unable to send message to the line card.	Faulty line card or the path between the CPU and the card. Go to the procedure "Testing the MISP loopback at a DSL interface" in this chapter.
BBDB	BRSC basecode disabled.	Enable BRSC using ENLC <BASE> Ill s cc in LD 32.
BADB	BRSC application is disabled.	Enable BRSC using ENLC Ill s cc in LD 32.
SYNC	Synchronized state.	Applies to TE mode DSL only; the S/T interface is in activation process.

For ISDN BRI lines

If the response is

II = software_state (DSL) (MISP_state LC_state)

the card is configured and the parameters in the response show the status of the DSLs, where

- ***II*** is a number from 00 to 07 indicating eight card ports (DSLs)
- the ***software_state (DSL)*** indicates the status of each DSL on the card. [Table 8](#) describes the statuses given.
- the ***MISP_state*** indicates the status of the MISP associated with the card. [Table 6](#) describes the statuses given.
- ***LC_state*** indicates the status of a DSL on a card. Refer to [Table 9](#).

For example, the response may be:

00 = UNEQ

01 = BUSY (DSL) (ESTA UP)

02 = UNEQ

00 = UNEQ

03 = UNEQ

04 = UNEQ

05 = UNEQ

06 = UNEQ

07 = MBSY (DSL) (MBSY UNDN)

[Table 8](#) lists DSL software states. *Software_state* is the status of a DSL as perceived by Meridian 1.

Table 8
DSL status in the Meridian 1 CPU

Software state (DSL)	Description	Comments
IDLE	No active calls.	No action required.
BUSY	Call is active.	No action required.
MBSY	DSL is in maintenance busy mode.	No action required. The DSL is being tested.
DSBL	DSL is disabled.	Enable DSL using LD 32.
UNEQ	DSL is unequipped.	The DSL is not configured. To configure the DSL, refer to the 553-3901-300, "DSL configuration procedures."

[Table 9](#) lists the DSL status as perceived in the MISP call application.

Table 9
DSL status in the MISP

MISP state	Description	Comments
NTAN	DSL is not assigned to an MISP.	DSL is not properly configured. To configure the DSL, refer to the 553-3901-300, "DSL configuration procedures."
UNEQ	Unequipped.	MISP is not configured. To configure the MISP, refer to the 553-3901-300, "MISP configuration procedures."
MBSY	DSL is in maintenance busy mode.	No action required. The DSL is being tested.
DSBL	DSL is disabled.	Enable DSL using LD 32.
UNDN	DSL is in an undefined state.	To check the DSL configuration, refer to the 553-3901-300, "DSL configuration procedures."
RLS	Link layer is not established.	Terminal not connected to the DSL or faulty. Check the terminal using the terminal user guide.
ESTA	Link layer is established.	No action required.
MPDB	MISP is disabled.	Enable MISP using LD 32.
APDB	MISP line application is disabled.	Enable MISP application using LD 32.
MPNR	MISP is not responding or message is lost.	Go to the procedure "Checking the MISP status" to check the MISP status.
UTSM	Meridian 1 CPU is unable to send message to MISP.	Go to the procedure "Checking the MISP status" to check the MISP status.

Table 10 lists line card states to indicate the status of a DSL.

Table 10
DSL status in the line card

Line card state	Description	Comments
UNEQ	Not equipped.	DSL is not configured. Refer to the 553-3901-300, "DSL configuration procedures" to configure the DSL.
DOWN	Link layer is not established.	DSL faulty or terminal is not connected or is faulty. Use the terminal user guide to check the terminal.
UP	Link layer is established.	No action required.
LCNR	Line card is not responding.	Faulty line card. Go to the procedure "Checking the SILC and UILC status."
DSBL	DSL is disabled.	Enable DSL using LD 32.
UNDN	DSL is in an undefined state.	Check the DSL configuration in the 553-3901-300, "DSL configuration procedures."
UTSM	Meridian 1 CPU is unable to send message to the line card.	Faulty line card or the path between the CPU and the card. Go to the procedure, "Testing the MISP loopback at a DSL interface."

Note: After obtaining the status of all the DSLs for a selected card, check the status of individual DSLs or perform the self-test on the SILC or UILC card, following the proper procedures described in this document.

Checking the DSL status

If the card status shows that some of the DSLs on the card are undefined, unequipped, down, or unable to send a message to the MISP, perform the following steps to check the individual DSLs.

Checking the DSL status

- 1 Type **STAT l s c dsl#**, where **l** is the loop number, **s** is the shelf (module) number, **c** is the card slot in the module, and **dsl#** is one of the eight ports (DSLs) on the card, and press the ENTER key.

For ISDN BRI trunk DSL types

If the response is:

l1 = sw_state dsl_type l2_state num_tei l1_state dch_state clock mode

where:

l1 is the DSL/unit number within the line card.

sw_state is one of the following DSL software states, as perceived by the Meridian 1 (please refer to [Table 5](#)):

IDLE (no active call);
 BUSY (active call in progress);
 UNEQ (DSL is not equipped);
 MBSY (in maintenance busy state).

dsl_type is the following type:

TRNK (ISDN BRI trunk DSL)

l2_state is one of the following DSL status, as perceived in the MISP call application (please refer to [Table 6](#)):

UNEQ (unequipped);
 IDLE (no active calls);
 BUSY (call is active);
 MSBY (in maintenance busy mode);
 DSBL (B Channel is disabled);
 ESTA (in established state);
 RLS (in release state);
 TEST (in test mode);
 RLBT (in remote loopback mode);
 APDB (application disabled);
 MPDB (MISP disabled).

num_tei is the number of established terminal end-point identifiers

Note: Not applicable to DSL trunks.

ll_state is one of the following line card states, to indicate the status of a DSL (please refer to [Table 7](#)):

- UNEQ (unequipped);
- DOWN (layer 1 is down);
- UP (layer 1 is up);
- DSBL (DSL is disabled);
- LCNR (line card not responding);
- UNDN (undefined DSL state);
- XPDB (associated XPEC is disabled);
- UTSM (unable to send messages to the MISP).

dch_state is one of the following D-channel states:

- ESTA (line is established);
- RLS (link is released);
- TEST-IDLE (in test mode);
- TEST-RLBT (in remote loopback test mode).

clock is one of the following clock mode configuration:

- DSBL (clock is configured but not active);
- PREF (primary reference clock is active);
- SREF (secondary reference clock is active).

mode is one of the following layer 1 mode configuration:

- NT (network);
- TE (terminal).

For ISDN BRI lines

If the response is

DSL UNEQ

the DSL is not configured in the Meridian 1 database.

If the response is

DSL: *swstate mstatus lcstatus*

B1 *Bstatus* B2 *Bstatus*

the DSL is configured and its status is defined by the parameters in the response, where

- *swstate* is the status of the DSL as perceived by Meridian 1
- *mstatus* indicates the status of the DSL in the MISP
- *lcstatus* indicates the DSL status on the card
- *Bstatus* is the status of the B-channel as perceived by Meridian 1.

An example of this response is as follows:

DSL: IDLE APDB UP

B1: IDLE B2: BUSY

The possible states for the *swstate* are listed in [Table 7](#); for the *mstatus* in [Table 9](#); for the *lcstatus* in [Table 7](#). The *B status* is listed in [Table 11](#).

Table 11
B-channel call status

B-channel status	Description	Comments
IDLE	No active calls	No action is required
BUSY	Call is active	No action is required
MBSY	B-channel is in maintenance busy state	No action is required. The channel is being used for maintenance testing
DSBL	B-channel is disabled	Enable DSL using LD 32

- 2 If the response is similar to

**DSL: DSBL DSBL UNEQ
B1 DSBL B2 DSBL**

Type **ENLU I s c dsl#** and press the ENTER key to enable the DSL, where **I s c dsl#** is the DSL address.

- 3 If the response is similar to

**DSL: DSBL NTAN UTM
B1 DSBL B2 DSBL**

Check the DSL configuration. To verify the DSL configuration parameters, refer to the 553-3901-300.

- 4 If the response is similar to

**DSL: DSBL RLS LCN
B1 DSBL B2 DSBL**

This indicates a hardware problem on this card port (DSL). Before replacing the card, perform the loopback test between the MISP and the SILC or UILC and verify if the path or the Superloop Network Card or Peripheral Controller Card is faulty.

Performing the SILC or UILC self-test

If the card or DSL status indicates that the SILC or UILC is faulty, conduct a self-test to verify that the SILC or UILC is actually faulty before replacing it. This test verifies the basic SILC or UILC functions and outputs a fail or pass message after the test is completed.

Performing the SILC or UILC self-test

- 1 Log in on the maintenance terminal and load overlay program 32 (type in **LD 32**).
- 2 Type **DISC l s c** and press the ENTER key to disable the card. Enter the card address, where **l** is the loop number, **s** is the shelf (module) number, and **c** is the card slot number in the module.
- 3 Exit LD 32 by typing ******** at the prompt.
- 4 Load overlay program 30 (type in **LD 30**).
- 5 Type **SLFT l s c** and press the ENTER key to start the self-test. Enter the card address, where **l** is the loop number, **s** is the shelf (module) number, and **c** is the card slot number in the module.

During the self-test observe the red LED on the front panel. The LED is on during the test. It flashes three times if the MISP loop passes the test; otherwise, the loop failed the test.

If the response is

NWS637

the card passed the self-test and is functional but the problem may be in the DSL cabling or the terminal.

Check the DSL connections from the I/O Panel on Meridian 1 IPE Module through the distribution frames to ISDN BRI terminals or trunks connected to this DSL. Other NWSxxx messages may appear, indicating different problem causes. For a list of possible messages, refer to the “Network and signaling diagnostic messages (NWSxxx)” section found later in this document.

If the response is

NWS632

the card failed the self-test and is faulty or missing. If the card is faulty, replace it as described in “Replacing ISDN BRI cards” procedures or install a card into the empty card slot if the card is missing.

MPH fault isolation and correction

The XCON TEST 9 command in the Background signaling and switching diagnostics (LD 45) provides a continuity check on the link interface between the MPH and MCU, the MISP, the BRSC, or the B-channels and the D-channels of a DSL.

The MPH is usually the originator for the continuity checks, sending a test pattern or a query status command. The response from the other end is then verified by the MPH and passed on to the Meridian 1. The test between the MPH and the Packet Switched Data Network (PSDN) through the PRI/MCU is the only exception to this; the PSDN can generate and receive patterns and the MPH loops it back.

[Table 12](#) illustrates the prompts to use with the MPH continuity check tests.)

Table 12
XCON Test 9 (LD 45)

Prompt	Response	Comment
TEST	9	CON test number
PATT	x	x = 0-7
TYPG	x	x = 5 is the MISP loop x = 8 is the PDNI.
LOOP	xx	MISP loop.
LBTY	x	x = 8 is the PSDN - MCU loopback x = 9 is the MCU loopback x = 10 is the PDL2 loopback x = 11 is the BCH loopback x = 12 is the BRSC loopback.
LBTN	xxxx	If LBTY = 8, LBTN is the MISP loop and NWIF is 1-3 If LBTY = 9 LBTN is MCU TN If LBTY = 10 LBTN is either BRIL loop or BRSC TN If LBTY = 11 LBTN is the BCH TN.

Using the MPH loopback tests

If a particular packet call setup is not working, check the communication links using the corresponding interface loopback test:

- For PSDN packet calls from a network interface, use the MPH and MCU to PSDN or the MPH and PRI to PSDN continuity test
- For B-channel packet data call setups, use the MPH to B-channel continuity test.
- For D-channel packet data call setups, use the MPH to MISP or MPH to BRSC loopback test.

These tests are described below.

MPH and PSDN through MCU continuity test

[Figure 8](#) illustrates this test which provides loopback testing between the MPH and PSDN through the MCU. The continuity check originates from the MPH through the Superloop network card, the Controller card, the line card, and then responds back at the MCU level. If the MCU was set up originally to operate in transparent mode (64 Kbps or 56 Kbps to the PSDN interface), the connection between the MPH and the MCU must be brought down and then reestablished. To perform this test, the dedicated connection between the MCU and the MPH must be in manually disabled state.

MPH and PSDN through PRI continuity test

[Figure 9](#) also illustrates this test which provides loopback testing between the MPH and PSDN using a PRI connection. To perform this loopback test, the dedicated connection between the PRI and the MPH must be in manually disabled state.

Figure 8
MPH to PSDN continuity test using MCU

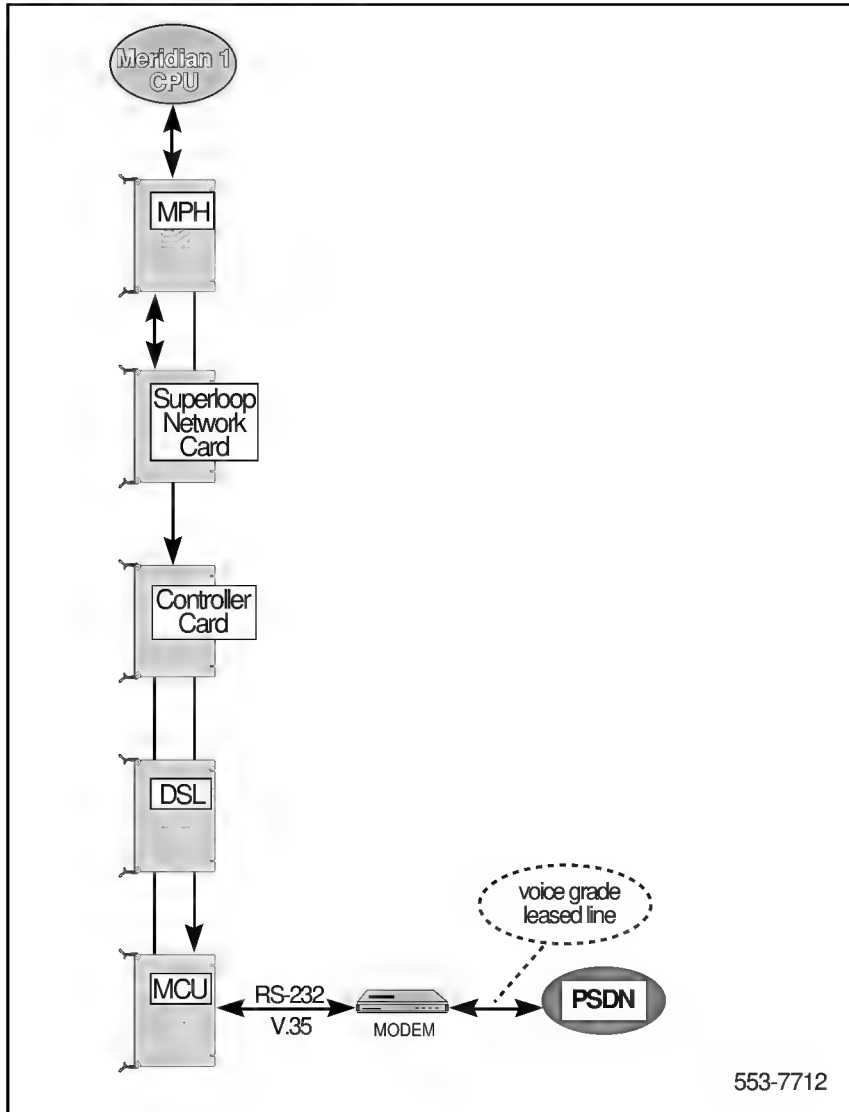
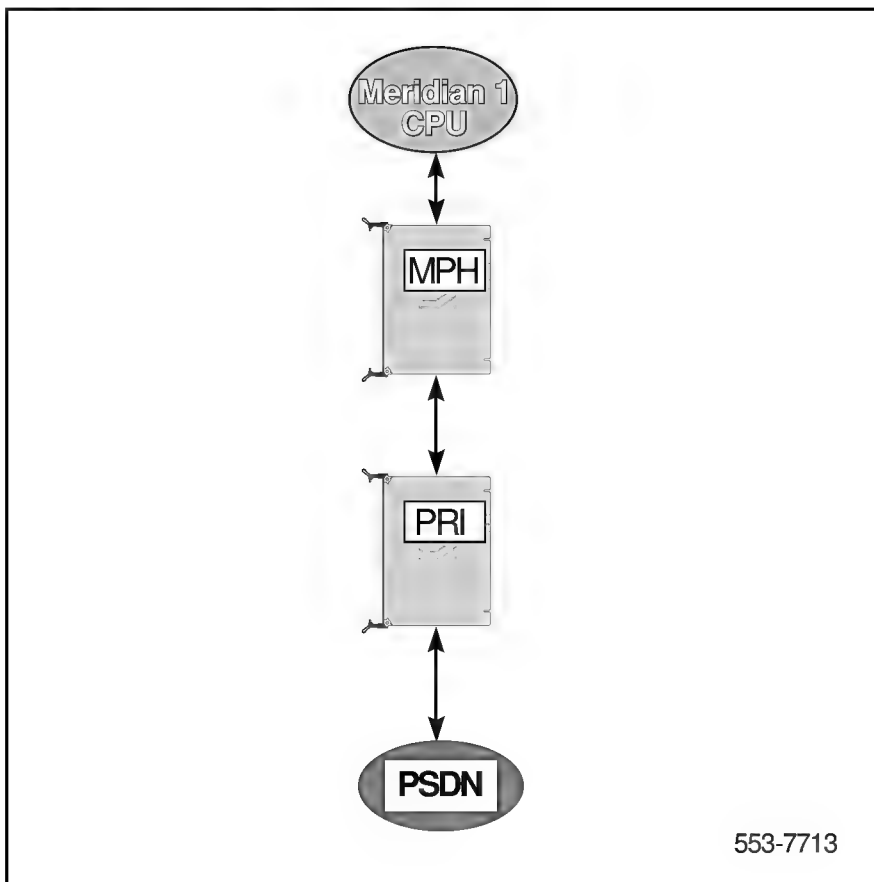


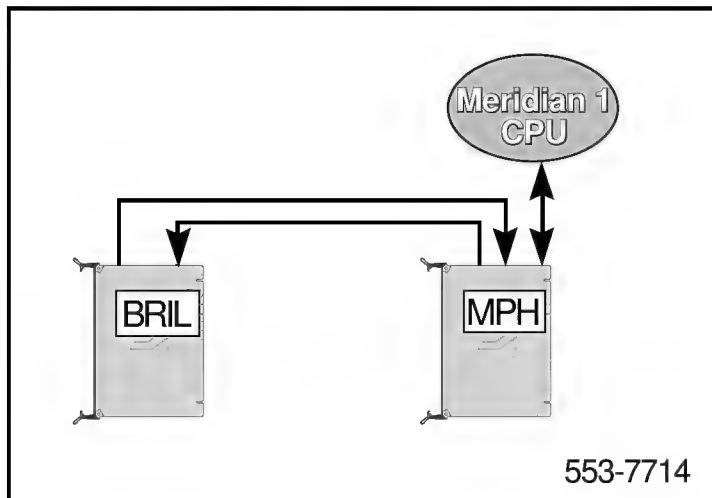
Figure 9
MPH to PSDN continuity test using MCU



MPH to BRIL continuity test

Figure 10 shows the MPH to BRIL continuity test. The link interface between the MPH and the MISP is a direct path through the network bus without any intervening circuit pack. A test pattern frame is sent from the MPH to the MISP. The MISP, on receiving the test frame, retransmits back to the MPH. To perform this test, the dedicated connection between the BRIL and the MPH must be in manually disabled state.

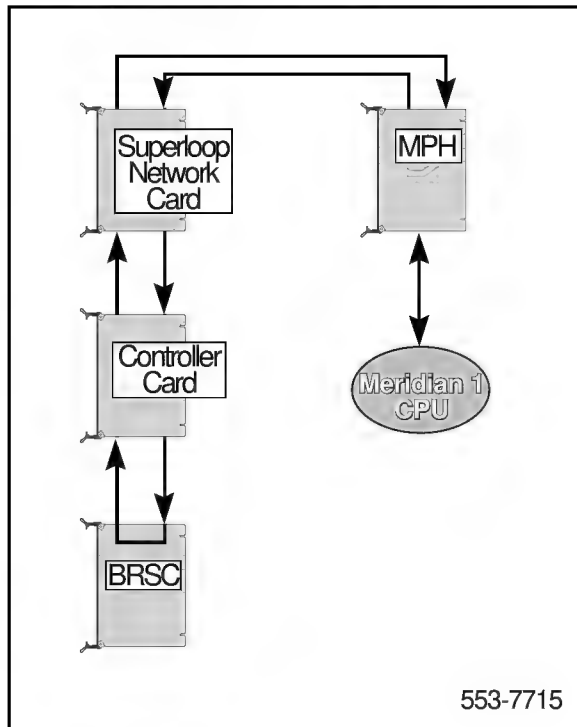
Figure 10
MPH to BRIL continuity test



MPH to BRSC continuity test

Figure 11 illustrates the MPH to BRSC test. As in the MISP case, a test pattern frame is sent from the MPH through the Superloop network card to the Controller card and then to the BRSC. Upon receiving the frame, the BRSC retransmits it back to the MPH. To perform this test, the dedicated connection between the BRSC and the MPH must be in manually disabled state.

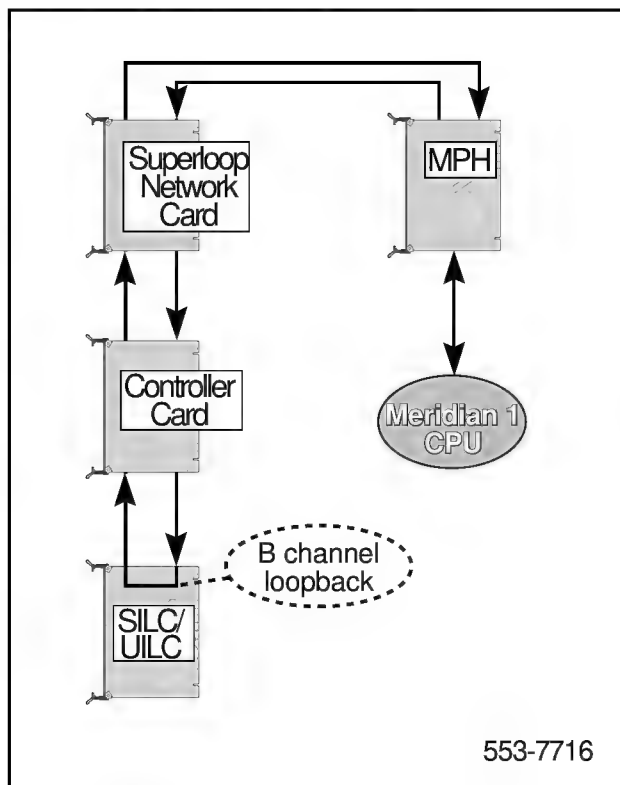
Figure 11
MPH to BRSC continuity test



MPH to B-channel continuity test

Figure 12 illustrates the MPH to B-channel continuity test. In the MPH to B-channel continuity test, the Meridian 1 sends a message to the line card placing the B-channel in loopback mode. The continuity test pattern is then transmitted by the MPH, going through the Superloop network card and the Controller card, then looped back at the line card. For the MPH to B-channel test, the dedicated connection between the MPH and the B-channel must be in manually disabled state.

Figure 12
MPH to B-channel continuity test



MPH to D-channel continuity test

The connection between the MPH and the D-channel is tested in two steps: first a continuity test pattern between the MISP/BRSC with the DSL's D-channel and a continuity test between the MISP/BRSC with the MPH. If both tests pass, the link between the MPH and the DSL D-channel is good.

ISDN BRI maintenance commands

MISP maintenance commands

MISP maintenance commands are used to manipulate the operational status and perform diagnostic tests on specific MISPs. These commands are located in different non-resident programs (overlays), which can be accessed using the administration terminal or the maintenance telephone.

[Table 13](#) lists these commands and the non-resident diagnostic program where they can be found.

Table 13
MISP maintenance commands (Part 1 of 2)

MISP Maintenance Command	Maintenance Command Description	Resident in Program
DISL I	Disables the MISP on network loop I.	LD 32
ENLL I	Enables the MISP on network loop I.	LD 32
DISL BRIL I	Disables the line application on MISP loop I.	LD 32
ENLL BRIL I	Enables the line application on MISP loop I.	LD 32
PERR I	Uploads and prints the error log for MISP on loop I	LD 32
ENLL I <FDL>	Enables <force downloads trunk applications> for MISP, on loop I.	LD 32
ENLL BRIT I <FDL>	Enables <force downloads> the application loadware for the ISDN BRI trunk application on the MISP, on loop I.	LD 32
DISL BRIT L <REM>	Disables <removes the trunk application loadware for the> ISDN BRI trunk application on the MISP, on loop I.	LD 32
STAT I	Displays the MISP status on MISP loop I.	LD 32
STAT BRIL I	Query the status of ISDN BRI line application on the MISP, loop I.	LD 32
STAT BRIT I	Queries the status of the ISDN BRI trunk application on the MISP on loop I.	LD 32

Table 13
MISP maintenance commands (Part 2 of 2)

MISP Maintenance Command	Maintenance Command Description	Resident in Program
IDC I	Displays the MISP card ID number, the base code, and the application software version numbers.	LD 32
SLFT III <1,2>	Performs self-test on the MISP, loop III, type 1 or 2. Type 1 test is a comprehensive test. Type 2 test is a power-on/reset test. Response NWS632 indicates selftest failed. Response NWS637 indicates selftest passed.	LD 30
XCON 0 H (0-182) M (0-59) S (0-60)	Performs loopback test from the MISP to an SILC or UILC that checks the signaling channel. It does not test the SILC or UILC but only the peripheral bus interface and backplane connectors. 0 = performs only one loopback test H, M, S = performs loopback test for the number of hours, minutes, or seconds entered.	LD 45
DWLD MISP xx FDL	Force downloads all BRIT interface tables on the MISP	LD 32
DWLD MISP DSQI FDL	Force downloads a particular BRIT interface table on the MISP	LD 32
ENLL BRIE xx FDL	Force downloads all BRIT interface tables and the BRIE application on the MISP	LD 32
ENLL BRIE xx	Disables the BRIE loadware application is	LD 32

BRSC maintenance commands

BRSC maintenance commands are used to manipulate the operational status and perform diagnostic tests on the cards and their associated MISPs. These commands deactivate the card you plan to test, perform the specified loop test or self-test, and return the card back into service.

These commands are located in different non-resident programs (LDs) which can be accessed using the administration terminal or the maintenance telephone.

[Table 14](#) lists the BRSC maintenance commands and the non-resident diagnostic program where they can be found.

Table 14
BRSC maintenance commands (Part 1 of 2)

BRSC maintenance command	Maintenance command description	Resident in program
DISC <BASE> III s cc	Disables the BRSC at the specified III s cc.	LD 32
ENLC III s cc <FDL/NST>	Enables the BRSC basecode at III s cc, and force downloads the basecode at the application.	LD 32
DISC I s cc	Disables ISDN BRI application at I s cc.	LD 32
ENLL III	Enables the MISP basecode at III, and enables all associated BRSCs.	LD 32
ENLC (BRI) III s cc	ENABLES BRSC ISDN BRI application at III s cc.	LD 32
DISC (BRI) III s cc	Disables BRSC ISDN BRI application at III s cc.	LD 32
ENLC III s cc <FDL>	Enables BRSC ISDN BRI application at III s cc, and force downloads the basecode at the application.	LD 32
DISL III	Disables the MISP basecode at III, and disables all associated BRSCs.	LD 32
ENLL III	Enables the MISP basecode.	LD 32
ENLL III <FDL>	Enables the MISP basecode and MISP application at III, which enables all other configured applications on the MISP.	LD 32

Table 14
BRSC maintenance commands (Part 2 of 2)

BRSC maintenance command	Maintenance command description	Resident in program
DISL BRIL III <REM>	Disables the MISP application at III, which disables the BRSC ISDN BRI application.	LD 32
ENL BRIL III <FDL>	Enables the MISP application at III, which enables the BRSC ISDN BRI application.	LD 32
DISS III s DSXP x	Disables the superloop network card III at location s. Disables the controller card x, which disables the BRSC at location III.	LD 32
ENLS III s ENXP X	Enables the superloop network card III at location s. Enables the controller card x, which enables the BRSC at location III.	LD 32
DISS III s	Disables logical shelf III at location s. If there is an enabled BRSC at the module, it remains enabled.	LD 45
DISU I s c dsl#	Deactivates DSL# at location I s c.	LD 32
ENLU s c dsl#	Activates DSL# at location I s c.	LD 32
STAT I s c	Displays status of all DSLs on the line card and the version number of the downloaded software at location I s c.	LD 32
STAT I s c dsl#	Displays status of DSL# on the line card at location I s c.	LD 32
IDC III s c	Checks the BRSC card identification, basecode and the ISDN BRI application version number at location III s c.	LD 32
STAT III s c	Displays the status of the BRSC card and the ISDN BRI application at location III s c.	LD 32
STEI TEI III s c dsl#	Displays the status of all TEIs and USIDs on DSL# at location III s c.	LLD 30
SLFT III s cc	Performs self-test on the BRSC at location III s cc.	LD 32

SILC and UILC maintenance commands

SILC and UILC maintenance commands are used to manipulate the operational status and perform diagnostic tests on specific cards and their DSLs. The main role of these commands is to deactivate the card you plan to test, to perform the specified loop test or self-test, and return the card back into service.

These commands are located in different non-resident programs (overlays), which can be accessed using the administration terminal or the maintenance telephone.

[Table 15](#) lists these commands and the non-resident diagnostic programs where they can be found.

Table 15
SILC/UILC maintenance commands (Part 1 of 4)

SILC/UILC Maintenance Command	Maintenance Command Description	Resident in Program
DISC l s c	Disables the SILC/ UILC at the specified loop l, shelf s, and card slot c. If the reference clock source is configured on the DSL, you will be prompted with “CLOCK SOURCE ON DSL # OF SILC L S C, PROCEED?” to ensure that you have taken necessary precautions for uninterrupted clock reference for the system.	LD 32
DISI l s c	Disables the SILC/ UILC when the card is idle, at the specified loop l, shelf s, and card slot c. If the reference clock source is configured on the DSL, you will be prompted with “CLOCK SOURCE ON DSL # OF SILC L S C, PROCEED?” to ensure that you have taken necessary precautions for uninterrupted clock reference for the system.	LD 32

Table 15
SILC/UILC maintenance commands (Part 2 of 4)

SILC/UILC Maintenance Command	Maintenance Command Description	Resident in Program
ENLC l s c	Starts the SILC/UILC self-test at a specified loop l, shelf s, card slot c, before enabling the line card. If the line card is not present in the card slot when this command is entered, the enabling process still takes effect. When the line card is inserted in the card slot at a later time, whichever of the DSLs that are in the enabled state are automatically brought up.	LD 32
DISU l s c dsls#	Deactivates the DSL at location l s c dsl#. If the reference clock source is configured on the DSL, you will be prompted with "CLOCK SOURCE ON DSL # OF SILC L S C, PROCEED?" to ensure that you have taken necessary precautions for uninterrupted clock reference for the system.	LD 32
ENLU l s c dsl#	Activates the DSL at location l s c dsl#.	LD 32
STAT l s c	Displays the status of all DSLs on the card and the version number of the downloaded software at location l s c.	LD 32
STAT l s c dsl#	Displays the status of a DSL on a card at location l s c dsl#.	LD 32
IDC l s c	Checks the card identification and the loadware version stored in the card.	LD 32
SLFT l s c	Performs self-test on the card, loop l, shelf s, card slot c.	LD 30
ESTU l s c d	Enables a D-channel link for a ISDN BRI trunk line, loop l, shelf s, card slot c, dsl#.	LD 32
RLSU l s c d	Releases a D-channel link for a ISDN BRI trunk line, loop l, shelf s, c, dsl#.	LD 32

Table 15
SILC/UILC maintenance commands (Part 3 of 4)

SILC/UILC Maintenance Command	Maintenance Command Description	Resident in Program
ENTS l s c d	Puts the far-end and near-end ISDN BRI trunk in test mode, line, loop l, shelf s, card slot c, dsl#. If the reference clock source is configured on the DSL, you will be prompted with “CLOCK SOURCE ON DSL # OF SILC L S C, PROCEED?” to ensure that you have taken necessary precautions for uninterrupted clock reference for the system.	LD 32
ENRB l s c d	Puts the far-end ISDN BRI trunk in remote loopback mode, line, loop l, shelf s, card slot c, dsl#.	LD 32
RLBT l s c d	Runs remote loopback test for an ISDN BRI trunk, line, loop l, shelf s, card slot c, dsl#.	LD 32
DSRB l s c d	Takes the far-end ISDN BRI trunk out of remote loopback mode, line, loop l, shelf s, card slot c, dsl#.	LD 32
DSTS l s c d	Takes the far-end and near-end ISDN BRI trunk DSLs out of test mode, line, loop l, shelf s, card slot c, dsl#.	LD 32
ENLU	Enables the ISDN BRI trunk.	LD 32
PMES l s c d	Uploads and prints layer 3 messages for ISDN BRI trunk DSL, loop l, shelf s, c, dsl#.	LD 32
PCON l s c d	Uploads and prints configuration parameters for ISDN BRI trunk DSL, loop l, shelf s, c, dsl#.	LD 32
PTRF l s c d	Uploads and prints the traffic report for ISDN BRI trunk DSL, loop l, shelf s, c, dsl#.	LD 32
PERR l s c	Uploads and prints the error log for a specified line card, loop l, shelf s, c, dsl#.	LD 32
PERR l	Uploads and prints the error log for a specified MISP, loop l.	LD 32

Table 15
SILC/UILC maintenance commands (Part 4 of 4)

SILC/UILC Maintenance Command	Maintenance Command Description	Resident in Program
PTAB l s c d <tabl#>	Uploads and prints layer 3 message configuration table for ISDN BRI trunk DSL, loop l, shelf s, c, dsl#, table#.	LD 32
PLOG l s c d	Uploads and prints the protocol log for ISDN BRI trunk DSL, loop l, shelf s, c, dsl#.	LD 32

MPH maintenance commands

Maintenance and diagnostic commands for the MPH provide the capability of performing fault detection and isolation, query link status, and disabling and enabling an MPH application.

[Table 16](#) lists the MPH maintenance commands and the non-resident diagnostic program where they can be found.

Table 16
MPH maintenance commands (Part 1 of 3)

MPH maintenance command	Maintenance command description	Resident in program
DSIF L PDNI Y	Disables link interface Y (1-3) for type PDNI on loop L.	LD 32
RMIF L PDNI Y	Disables and removes link interface Y (1-3) for type PDNI on loop L.	LD 32
ENIF L PDNI Y <FDL>	Enables link interface Y (1-3) for type PDNI on loop L.	LD 32
DSIF L PDL2 L1	Disables link interface SAPI16 for BRIL on loop L.	LD 32
RMIF L PDL2 L1	Disables and removes link interface SAPI16 for BRIL on loop L.	LD 32
DSIF L PDL2 I s c	Disables link interface SAPI16 for BRSC only s c.	LD 32
RMIF L PDL2 I s c	Disables and removes link interface SAPI16 for BRSC on I s c.	LD 32
ENIF L PDL2 L1 <FDL>	Enables link interface SAPI16 for BRIL on loop L.	LD 32
ENIF L PDL2 I s c <FDL>	Enables link interface SAPI16 for BRSC on I s c.	LD 32
DSIF I s c DSL DCH x	Disables link interface for USID x for D-channel packet data terminal TN I s c DSL.	LD 32
ENIF I s c DSL DCH x <FDL>	Enables link interface for USID x for D-channel packet data terminal TN I s c DSL.	LD 32
DSIF I s c DSL BCH x	Disables link interface for USID x for B-channel packet data terminal TN I s c DSL.	LD 32
RMIF I s c DSL BCH x	Disables and removes link interface for B-channel packet data TN I s c DSL, for B-channel x (x = 1 or 2)	LD 32

Table 16
MPH maintenance commands (Part 2 of 3)

MPH maintenance command	Maintenance command description	Resident in program
ENIF I s c DSL BCH x <FDL>	Enables link interface for USID x for B-channel packet data terminal TN I s c DSL, for B-channel x (x = 1 or 2)	LD 32
STIF L PDNI Y	Displays the link status for interface Y for type PDNI on loop L.	LD 32
STIF L PDL2 L1	Displays the status for link interface SAPI16 for BRIL on loop L.	LD 32
STIF L PDL2 I s c	Displays the status for link interface SAPI16 for BRSC on I s c.	LD 32
STIF I s c DSL DCH x	Display status of link interface D-channel for USID x for packet data terminal TN I s c DSL.	LD 32
STIF I s c DSL BCH x	Display status of link interface B-channel packet data terminal TN I s c DSL, for B-channel x (x = 1 or 2)	LD 32
ERRL L <CLR>	Upload error logs for the MPH application on loop L; if entered, the <CLR> option clears all error log peg counts.	LD 32
ENLL L <FDL>	Enables the MISP.	LD 32
DISL MPH L <REM>	Disables MPH application on loop L.	LD 32
ENLL MPH L <FDL>	Enables MPH application on loop L.	LD 32
STAT L	Displays the status of MISP on loop L.	LD 32
STAT MPH L	Displays status of MPH application.	LD 32
IDC L	Displays MISP basecode and application version number.	LD 32
DISL L	Disables network loop L on which MCU and B-channel/D-channel terminals are defined.	LD 32
ENLL L	Enables network loop L on which MCU and B-channel/D-channel terminals are defined.	LD 32

Table 16
MPH maintenance commands (Part 3 of 3)

MPH maintenance command	Maintenance command description	Resident in program
DSXP X	Disables network card X on which MCU and B-channel/D-channel terminals are defined.	LD 32
ENXP X	Enables network card X on which MCU and B-channel/D-channel terminals are defined.	LD 32
DISC l s c	Disables line cards on which MCU and B-channel/D-channel terminals are defined.	LD 32
ENLC l s c	Enables line cards on which MCU and B-channel/D-channel terminals are defined.	LD 32
DISU l s c u	Disables the unit on which MCU and B-channel/D-channel terminals are defined.	LD 32
ENLU l s c u	Enables the unit on which MCU and B-channel/D-channel terminals are defined.	LD 32
ENLC l s c	Enables the line card on which the MCU is defined.	LD 32
XCON	Invoke MPH link interface loopback test 9.	LD 45

MISP and SILC/UILC message monitoring commands

Link Diagnostic Program **LD 48** is used to monitor and print messages sent and received by the MISP, SILC, and UILC cards.

These commands are used to enable the technician to monitor ISDN BRI activity during normal system operation and to facilitate system maintenance.

[Table 17](#) lists Link Diagnostic Program LD 48 commands and their functions.

Table 17
MISP and SILC/UILC message monitoring commands (Part 1 of 2)

LD 48 Command	Command Description
SETM MISP <loop #> DBG	Turns on the debug option on the MISP.
SETM MISP <loop #> MON	Turns on the printing option for incoming and outgoing messages for the MISP.
SETM MISP <loop #> MNT	Prints status messages for the MISP.
SETM MISP <loop #> AMO	Activates sending audit messages from the CPU to the MISP.
SETM MISP BRIM	Prints input/output messages from the CPU to the MISP and SILCs/UILCs and from these cards back to the CPU (according to the hexadecimal control word xxxx for MISPS or ISDN BRI line cards).
SETM TNx s c dsl#	Activates printing of messages for a specified DSL.
SETM TNx s c 31	Activates printing of messages for a specified ISDN BRI card.
RSET MISP <loop #> DBG	Resets the command for debug option.
RSET MISP <loop #> MON	Resets the command for monitor option.
RSET MISP <loop #> MNT	Resets the command for printing maintenance messages.
RSET MISP <loop #> AMO	Resets the command for audit option.

Table 17
MISP and SILC/UILC message monitoring commands (Part 2 of 2)

LD 48 Command	Command Description
RSET MISP BRIM	Resets the command for printing messages for a DSL or line card.
RSET TNx	Resets the command for printing of messages for a specified DSL.
RSET ALL	Resets the command for a group of commands.

Note: For SETM BRIM, use bits 1, 2, 3, 4, 5, and 11 of the control word for different types of messages. [Table 18](#) lists the bit numbers and their corresponding message types.

Table 18
ISDN BRI message types

Bit Number	Type of Message
0	Input SSD message from ISDN BRI line cards to the Meridian 1.
1	Output SSD message from Meridian 1 to ISDN BRI line cards.
2	Input expedited message from BRIL/BRIT application on MISP card to the Meridian 1.
3	Output expedited message from Meridian 1 to BRIL/BRIT application on MISP card.
4	Input ring message from BRIL/BRIT application on MISP card to the Meridian 1.
5	Output ring message from Meridian 1 to BRIL/BRIT application on MISP card.
11	Call processing error message.

MPH message monitoring commands

Link Diagnostic Program **LD 48** is used to monitor and print messages sent and received by the MPH interface. These commands are used to enable the craftsperson to monitor ISDN BRI activity during normal system operation and to facilitate system maintenance.

[Table 19](#) lists Link Diagnostic Program LD 48 commands and their functions, as they pertain to MPH.

Table 19
MPPH message monitoring commands

MPH maintenance command	Maintenance command description	Resident in program
SETM IFx <MPH loop#> PDL2<BRIL loop#>	Monitors the interface messages for BRIL SAPI16 interface type.	LD 48
SETM IFx <MPH loop#> PDL2 <BRSC l s c>	Monitors the interface messages for BRSC SAPI16 interface type.	LD 48
SETM IFx <MPH loop#> PDN1 <NWIF#>	Monitors the interace messages for network interfaces.	LD 48
SETM IFx <L S C D> BCHx	Monitors the interace messages for B-channel terminal x (x = 1 or 2).	LD 48
SETM IFx <L S C D> DCHx	Monitors the interace messages for D-channel terminals (x = USID number).	LD 48
RSET IFx	Resets the interface message monitor per interfacer.	LD 48
RSET MPPH	Resets the MPH messages to be monitored.	LD 48
SETM MPPH XXXX	Specifies the MPH messages to be monitored.	LD 48

Application download and enable application failure messages

Once the D-channel port is enabled, the enable application or MISP Handler download function may fail. [Table 20](#) and [Table 21](#) provide possible reasons for download failure and enable application failure, and corrective actions to take. Please note that the messages are printed on the TTY terminal.

Table 20
Download fail messages

Message	Action to take
DOWNLD FAIL (FDL NOT ALLOWED)	Check if other D-channel ports are enabled on the MISP.
DOWNLD FAIL (PSDL FAILURE)	Try again. If problem persists, then report it.
DOWNLD FAIL (TX BUF BUSY)	Try again later.
DOWNLD FAIL (MTC IN PROG)	Try again later.
DOWNLD FAIL (NO MTC SID)	Report the problem.
DOWNLD FAIL (****)	Report the problem. Note that **** is the reason passed from the MISP interface handler.

Table 21
Enable application fail messages

Message	Action to take
ENLAPPL FAIL (CARD SAYS FAIL)	The MISP is not allowing the application to be enabled. Try again. If problem persists, then report it.
ENLAPPL FAIL (APPL TRANSIENT ST - TRY AGAIN)	Try again.
ENLAPPL FAIL (****)	Report the problem. Note that **** is the reason passed from the MISP interface handler.